REMARKS

This is in response to the Office Action dated January 30, 2004.

A few amendments to the claims have been made. The amendments are made to make clear that the fourth portion of the second biphasic pulse follows the third portion.

The present invention describes coding and decoding of information. The duration of a period between a first and a second biphasic pulse represents a plurality of data bits. The first biphasic pulse and the second biphasic pulse are inverted from one another. That is, the first portion of the first biphasic pulse, for example, is positive, whereas the first portion of the second biphasic pulse is negative.

The claims were rejected under 35 U.S.C. §102(b) as anticipated by Yerich. In particular, Figure 3 was cited.

As applicant reads Yerich, the signal shown in Figure 3 is not for encoding or decoding data or for the transmission of information. Rather, "Figure 3 is an illustration of a excitation current pulse delivered by impedance measurement circuitry in the pacemaker of Figure 2." (See Col. 5).

Additionally, as described in column 8, beginning at line 53:

> An illustration of a biphasic excitation pulse delivered for impedance measurement in accordance with the present embodiment of the invention is shown in FIG. 3. It is believed that the biphasic nature of an excitation pulse, such as the one depicted in FIG. 3, offers the advantages over a monophasic pulse that the peak amplitude of the excitation pulse is minimized given the overall energy content of the pulse, electrode polarization is canceled, and DC current is balanced to avoid long-term lead metal-ion oxidation. As shown in FIG. 3, each phase of the biphasic pulse lasts for approximately 15-μSec, and the pulses are delivered once every 0.0625-Sec (i.e., at a rate of 16-Hz, as previously noted).

In addition to not encoding or decoding information, the signal waveform of Figure 3 does not show one biphasic pulse inverted from the other. That is, as shown in Figure 3, the two pulses both begin with a positive polarity.

The rejection states that Figure 3 shows "a waiting period where no information is sent," referring to the period between the pulses of Figure 3. This may be true for Figure 3, but the claim describes that, while no amplitude dependent data bits are encoded during this period, "the duration of the period of time being selected to represent a plurality of data bits." Thus, the duration has significance in the present claim and varies, whereas this is not the case for the waveform of Figure 3.

Column 7 of Yerich was also cited as being pertinent. The paragraph at the top of column 7 provides a glimpse into a modulation scheme where "a shorter interval may encode a digital 0 while a longer interval encodes digital 1 bit." There is no mention here of biphasic pulses, nor is it clear what modulation occurs.

In connection with column 7, applicant has submitted an I.D.S. with U.S. Patent 5,127,404, the patent cited in column 7. This patent describes in more detail the modulation scheme described in column 7. More specifically, this modulation scheme is described as:

> (a) formatting the telemetry signal being transmitted using a frame having a predetermined time interval, the frame including at least first, second and third sub-interval ranges, each range comprising a set of available pulse positions;
>
> (b) encoding the formatted telemetry signal by:
>
> (1) placing a frame-synchronizing signal at a predetermined pulse position within the first sub-interval to synchronize the frame;
>
> (2) placing an data-identifier signal at a predetermined pulse position within the second sub-interval to identify the type of information being transmitted;

(3) placing a data-value signal at a predetermined pulse position within the third sub-interval to indicate the value of the information being transmitted; and

(c) transmitting the formatted, encoded telemetry signals between the implanted medical device and the external device.

This clearly is not the coding/decoding scheme of the claims in this application.

The claims were also rejected under Gord, in particular, column 16, beginning at line 34. This describes using:

> A binary "1" may be represented by a biphasic pulse of one phase, e.g., a positive current pulse followed by a negative current pulse; while a binary "0" may be represented by a biphasic pulse of the opposite phase, e.g., a negative pulse followed by a positive pulse. Thus, as shown in FIG. 6, a binary "1" may be represented as a positive current pulse followed by a negative current pulse, while a binary "0" is represented by a negative current pulse followed by a positive current pulse.

As further described in column 16, a period T1 separates one pulse from another. There is no indication that the duration of this period is used to transmit information. Claim 19 of the parent application, for instance, requires "the duration of the period of time being selected to represent a plurality of data bits." This is not found in Gord.

Applicant submits that the claims are clearly patentable over the art of record, and that any rejection basis of 35 U.S.C. §102(b) is improper.

The Examiner is encouraged to call the undersigned at (408) 720-3456, if the Examiner believes this case is not in condition for allowance.

Please charge any shortages and credit any overcharges to our Deposit Account No. 02-2666.

Respectfully submitted,
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Dated: 5/11, 2004

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